

CLAIMS

1 1. A method of providing documents to a visitor to a Web site, the Web site
2 comprising a plurality of browser-readable Web pages, at least some of the Web
3 pages containing text portions represented in a pivot language, the Web site ac-
4 cording access to a Web page by causing, in response to a request therefor,
5 communication of the Web page to a requester's computer for presentation
6 thereon, the method comprising the steps of:

- 7 a. determining a desired natural language for the requester;
8 b. receiving a Web-page selection from the requester's computer;
9 c. translating any text portions of the selected Web page from the pivot
10 language into the desired natural language; and
11 d. communicating the translated selected Web page to the requester's
12 computer.

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1 2. The method of claim 1 wherein the requester's computer runs a Web
2 browser as an active process and the desired language is entered in the Web
3 browser, the desired natural language being determined through interaction with
4 the browser.

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1 3. The method of claim 1 wherein the requester's computer comprises a
2 storage facility, the desired natural language being indicated on a cookie stored
3 in the storage facility, the desired natural language being determined through
4 interrogation of the cookie.

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1 4. The method of claim 1 wherein each Web page is represented in multiple
2 versions, the text portions of each version being expressed in a constrained
3 grammar corresponding to a different language, the translating step comprising
4 (i) selecting the Web-page version corresponding to the desired natural language
5 and (ii) translating the text portions into the desired natural language.

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1 5. The method of claim 1 wherein the pivot language is a language-
2 independent constrained grammar convertible into natural languages and capa-
3 ble of translation among languages by direct substitution of words and phrases,
4 each Web page being represented in a single version in which the text portions
5 are expressed in the pivot language, the translating step comprising (i) translat-
6 ing the text portions into a form representative of the desired language by direct
7 substitution of words and phrases, and (ii) converting the translated text portions
8 into the desired natural language.

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1 6. The method of claim 1 wherein the pivot language is a constrained gram-
2 mar derived from one of a plurality of natural languages and convertible into con-
3 strained grammars derived from the other natural languages, the Web page be-
4 ing represented as an XML document including attributes relevant to the con-
5 strained grammar.

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1 7. Apparatus for providing documents to a visitor to a Web site, the appara-
2 tus comprising:

- 3 a. a plurality of browser-readable Web pages defining the site, at least
4 some of the Web pages containing text portions represented in a pivot
5 language;
- 6 b. a Web server for receiving a request from the visitor for a Web page
7 and, in response thereto, locating the Web page and communicating it
8 to the visitor; and
- 9 c. a translation module responsive to a visitor-specified natural language
10 for translating any text portions of the selected Web page from the pivot
11 language into the desired natural language prior to communication of
12 the Web page.

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1 8. The apparatus of claim 7 wherein the visitor communicates with the Web
2 site using a computer, the Web server interacting with a Web browser running as
3 an active process on the visitor's computer, the desired natural language being

4 entered in the Web browser, the Web server obtaining the desired natural lan-
5 guage from the browser.

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1 9. The apparatus of claim 7 wherein the visitor communicates with the Web
2 site using a computer, the visitor's computer comprising a storage facility having
3 the desired natural language indicated on a cookie stored therein, the Web
4 server determining the desired natural language being through interrogation of
5 the cookie.

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1 10. The apparatus of claim 7 wherein the pivot language is a language-
2 independent constrained grammar convertible into natural languages and capa-
3 ble of translation among languages by direct substitution of words and phrases,
4 each Web page being represented in a single version in which the text portions
5 are expressed in the pivot language, the translation module being configured to
6 (i) translate the text portions into a form representative of the desired language
7 by direct substitution of words and phrases, and (ii) convert the translated text
8 portions into the desired natural language.

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1 11. The apparatus of claim 7 wherein each Web page is represented in multi-
2 ple versions, the text portions of each version being expressed in a constrained
3 grammar corresponding to a different language, the translation module being

4 configured to (i) select the Web-page version corresponding to the desired natu-
5 ral language and (ii) translate the text portions into the desired natural language.

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1 12. The apparatus of claim 7 wherein the pivot language is a constrained
2 grammar derived from one of a plurality of natural languages and convertible into
3 constrained grammars derived from the other natural languages, the Web page
4 being represented as an XML document including attributes relevant to the con-
5 strained grammar.

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1 13. A method of searching for stored content, the method comprising the
2 steps of:

- 3 a. facilitating entry of a natural-language search query by a user operating
4 a client computer, the search query comprising a plurality of terms;
5 b. facilitating transmission, via a computer network, of the search query
6 from the client computer to a language server;
7 c. facilitating conversion of the natural-language search query received by
8 the language server into a constrained grammar through interaction, via
9 the computer network, with the user, the interaction including disam-
10 biguation of the query terms; and

11 d. searching stored content items, at least a portion of each content item
12 being expressed in the constrained grammar, for matches between the
13 item constrained grammar and the converted search query.
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1 14. The method of claim 13 further comprising the step of ranking at least
2 some of the items containing matches in an order of relevance, the order favor-
3 ing items having constrained-grammar terms that literally match the converted
4 search query.
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1 15. The method of claim 13 wherein the client computer interacts with the
2 language server through communication, via the computer network, with a host
3 server, the host server communicating via the computer network with the lan-
4 guage server to facilitate the interaction.
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1 16. The method of claim 15 wherein the host server performs the searching
2 step.
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1 17. The method of claim 15 wherein the searching step is performed by a
2 search server communicating, via the computer network, with the host server.
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1 18. A method of facilitating information composition and broadcast, the
2 method comprising the steps of:

- a. facilitating entry of a natural-language text composition by a user operating a client computer;
- b. facilitating transmission, via a computer network, of the text composition from the client computer to a language server;
- c. facilitating conversion of the text composition received by the language server into a pivot language through interaction, via the computer network, with the user, the interaction including disambiguation of the text composition;
- d. facilitating designation of a desired natural language by a receiving device;
- e. causing the language server to translate the converted text composition from the pivot language into the desired natural language; and
- f. causing transmission of the text composition in the desired natural language to the receiving device via a communication medium.

19. The method of claim 18 wherein the transmission step is accomplished by a broadcast server in communication, via a computer network, with the language server, the receiving device communicating with the broadcast server to specify the desired natural language.

20. The method of claim 19 wherein the broadcast server receives from the language server a plurality of natural-language versions of the text composition

3 including a version in the desired natural language, the broadcast server trans-
4 mitting said version to the receiving device.

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1 21. The method of claim 19 wherein the broadcast server identifies the de-
2 sired natural language to the language server, which, in response, translates the
3 converted text composition from the pivot language into the desired natural lan-
4 guage and transmits translated text composition via a computer network to the
5 broadcast server for transmission to the receiving device.

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1 22. A method of facilitating electronic message exchange, the method com-
2 prising the steps of:

3 a. facilitating entry of a natural-language message by a user operating a
4 client computer;

5 b. facilitating transmission, via a computer network, of the message from
6 the client computer to a language server;

7 c. facilitating conversion of the message received by the language server
8 into a pivot language through interaction, via the computer network,
9 with the user, the interaction including disambiguation of the message;

10 d. facilitating designation of a desired natural language by a message re-
11 cipient;

12 e. causing translation of the converted message from the pivot language
13 into the desired natural language; and

14 f. making the message available to the recipient in the desired natural
15 language.

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1 23. The method of claim 22 wherein the recipient operates a client computer,
2 the message being initially transmitted to the recipient's client computer in the
3 pivot language, the recipient's client computer transmitting, via a computer net-
4 work, the pivot-language message and the language designation to the language
5 server, the language server translating the message into the desired natural lan-
6 guage and transmitting the natural-language message via the computer network
7 to the recipient's client computer.

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1 24. The method of claim 22 wherein the recipient operates a client computer,
2 the message being initially transmitted to the recipient's client computer in the
3 pivot language, the recipient's client computer transmitting, via a computer net-
4 work, the pivot-language message and the language designation to a second
5 language server, the second language server translating the message into the
6 desired natural language and transmitting the natural-language message via the
7 computer network to the recipient's client computer.

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